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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,379	06/29/2006	Gorur Narayana Srinivasa Prasanna	2003710-0003	4743

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BOSTON, MA 02110

EXAMINER

RO, BENTSU

ART UNIT	PAPER NUMBER
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2837

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/552,379

Applicant(s)

PRASANNA, GORUR NARAYANA
SRINIVASA

Examiner

Bentsu Ro

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7, 22, 29-32, 35-37 and 42-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 22, 35-37, 42, 43 and 48-50 is/are rejected.
- 7) ☒ Claim(s) 29-32 and 44-47 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) *
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) *
Paper No(s)/Mail Date 10/7/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

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FIRST OFFICE ACTION

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

2. Specification correction is required as follows:

- Page 20, line 22, change the phrase "an induction member R_7_200," to --an induction member I_7_200,--. See drawing Fig. 7(a).

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 22 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 is rejected because of the following reasons:

- Claim 22 depends on a canceled claim 20.
- Claim 22, line 1, the recitation "wherein each prime mover" lacks antecedent basis even if claim 22 is amended to depend on claim 1.

Claim 49 is rejected because lines 3-5 are unclear. Further, the word "exemplarily" is considered indefinite.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 7, 36, 37, 48 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Boyle US Patent No. 727,276.

Basically claims read onto any one of ac/dc universal motors. The Boyle's patent is only one example of the universal motors.

Universal motors can be constructed in three different types: (1) series type; (2) shunt type; and (3) compound type. Boyle disclose series type of universal motors. Further, the universal motors may or may not have permanent magnets. However, the construction with permanent magnets as shown in Boyle's teaching, does not change the operation principle of the motor.

Understanding the basic information of a universal motor, claims read onto Boyle's teaching as follows:

The claims:	Boyle's teaching:
<p>1. (Original) An apparatus, comprising:</p> <p>a first component having one or more electromagnetic element; and</p> <p>a second component having one or more electromagnetic elements</p>	<p>Boyle's sole figure shows a universal motor;</p> <p>the universal motor has a U-shaped stator 4, the U-shape stator 4 has two windings, thus the U-shaped stator 4 is a first component having two electro-magnetic elements;</p> <p>the sole figure shows an armature 1, the armature 1 is a second component; the armature 1 has four heads 2, each head 2 has its own winding; thus, the head 2 and the corresponding winding together constitute one electromagnetic element;</p>

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<p>and movably coupled to the first component,</p> <p>wherein:</p> <p>the second component is adapted to move with respect to the first component in a cyclical manner; and</p> <p>the one or more electromagnetic element of the first component are adapted to interact with the one or more electromagnetic elements of the second component during each of one or more cycles of motion of the second component with respect to the first component</p> <p>such that,</p> <p>when a constant force profile is applied to move the second component with respect to the first component,</p> <p>the speed of motion increases and decreases one or more times during each cycle of motion due to different levels of electromagnetic interaction between the electromagnetic elements within each cycle of motion.</p>	<p>the armature 1 rotates with respect to the U-shaped stator 4;</p> <p>the rotation of the armature 1 is a cyclical manner;</p> <p>when the armature poles face the U-shaped stator poles or when the armature poles rotate to the vicinity of the U-shaped stator poles, the armature poles interact with the stator poles;</p> <p>it is noted that the interaction occurs cyclically during each revolution of the armature 1;</p> <p>the "<u>constant force profile</u>" reads onto the voltage of battery 8; why???</p> <p>because:</p> <ul style="list-style-type: none"> • the "voltage" has a different name called "electromotive force, or emf"; • the battery voltage is constant; <p>thus, a constant dc battery voltage is a constant force profile;</p> <p>when switch lever 10 moves to the contact 11, the dc battery voltage is applied to move the armature 1 with respect to the U-shaped stator;</p> <p>first, the armature 1 of Boyle's universal motor shows four windings, each winding should have two commutator segments; when armature rotates once, there should be 8 commutations; thus, each commutation covers mechanical 45°; during this 45 mechanical degrees, the force acts between the armature and the stator is not even, this is because the</p>
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	<p>armature rotates;</p> <p>the following experiment further demonstrates the un-even force level: if one rotates the position of the brushes, the armature may start to rotate forwardly, further rotates the brushes, the armature speed may increase; if the brush rotation continues in the same direction, the armature may increase its speed to a maximum, and then decreases the speed, and then stop, and then reverse its speed slowly, and then the reversing speed to its maximum, and then reversing speed slows again, and then the armature stops, and then the armature rotates forward again, but slowly, the cycle repeats;</p> <p>why this phenomenon happens?? because the magnetic flux interaction is different at different angle of armature rotation.</p>
<p>2. (Currently amended) (and similar claim 3) The apparatus of claim 1, wherein the levels of electromagnetic interaction are dependent on the direction of the motion of the second component with respect to the first component.</p>	<p>at any specific angle of the armature, if the armature moves forwardly, the interaction level increases, then the armature moves reversely, the interaction level should decrease.</p>
<p>7. The apparatus of claim 1, where at least one electromagnetic element has a non-uniform surface texture</p> <p>that is matched to a surface to which it is attached.</p>	<p>the armature lamination is <u>"at least one electromagnetic element has a non-uniform surface texture"</u> because the curvature at the pole tip of the lamination;</p> <p>the head 2 should match the surface of the armature pole tip lamination.</p>
<p>36 and 37.</p>	<p>claim 36 reads onto the armature rotating one revolution, claim 37 reads onto half revolution.</p>

<p>48. (New) The apparatus of claim 1, further comprising: a brake</p> <p>having varying levels of interaction between the first and second components resulting in a varying braking force being applied,</p> <p>without using any modulation of applied external power.</p>	<p>when switch lever 10 moves to contact 14, which together is brake;</p> <p>the different armature position facing the stator poles resulting in a varying level of interaction between the armature and the stator because the changing of reluctance between the two poles of the stator;</p> <p>the battery voltage is directly applied to the stator windings without any modulation.</p>
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7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 35, 42, 43, 49, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle.

The subject matters of these claims are not inventive because of the following reasons:

Claim 35:

As explained previously, permanent magnets can be incorporated into the poles of all universal motor without changing the operational principle of the motor.

Claim 42:

The motor of Boyle can be constructed in a linear form, namely, a linear motor.

Claim 43:

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The number of stator poles as well as armature poles in the Boyle's motor can be increased without changing the operational principle of the motor.

Claim 49:

The Boyle's motor can be used to drive a latching mechanism, which is a well-known art.

Claim 50:

The damping coefficient of a shock absorber can be controlled by electromagnetic mechanism, including using an electric motor.

9. Claims 29-32, 44 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication should be directed to Bentsu Ro at telephone number 571 272-2072.

12/14/2006



Bentsu Ro
Senior Examiner
Art Unit 2837